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EXAMINER	
KIM, DAVID S	

ART UNIT	PAPER NUMBER
2613	

DATE MAILED: 11/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/725,025	SEDDIGH ET AL.	
	Examiner	Art Unit	
	David S. Kim	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. **Claims 5, 7-10, 13, 15, 20-25, 27, and 29** are objected to because of the following informalities:

In claim 5, "the wavekey" is lacking antecedent basis.

In claims 7-10, "expected wavekey" is lacking antecedent basis.

In claims 13, 15, 20, "wavekey" is lacking antecedent basis.

Claim 21 depends on claim 17 where dependency on claim 18 may be intended. Otherwise, antecedent basis for "RESULT_LIST1 and RESULT_LIST2" is lacking.

In claims 22-25, "expected wavekey" is lacking antecedent basis.

In claims 27 and 29, "the wavekey" is lacking antecedent basis.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. **Claims 3-5, 8-10, 12-15, 18-20, and 23-29** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 3-5, 8-10, 12-15, 18-20, and 23-29, the antecedent basis for "the light path" is unclear. Parent claims 1 and 16 introduce three "light paths": (1) "an existing light path", (2) "a potential light path", and (3) "a light path between a source node and a destination node" "to be monitored". These claims use the term "the light path", but it is unclear which of the three "light paths" is intended for antecedent basis. Accordingly, these claims are indefinite.

In claim 13, "the list of all optical nodes in the OCN" lacks antecedent basis. Also, "the CN (Control Network) topology information" lacks antecedent basis.

In claim 15, "the CN (Control Network) topology information" lacks antecedent basis.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. **Claims 1-3, 6, 12, 14, 16-18, 21, 26, and 28** are rejected under 35 U.S.C. 103(a) as being unpatentable over Rajagopal et al. (U.S. Patent No. 7,120,118 B2, hereinafter "Rajagopal").

Regarding claim 1, Rajagopal discloses:

A method for monitoring a path between a source node and a destination node (source-destination pair in Fig. 2) in a Communication Network (OCN), the method comprising the steps of:

executing a procedure for tracing an existing light path between the source node and the destination node in the OCN (col. 4, l. 29-43);

executing a procedure for identifying a potential light path between the source node and the destination node in the OCN (block 212 in Fig. 2);

executing a procedure for identifying the nodes that are traversed by the light path existing between the source node and the destination node in the OCN (block 502 in Fig. 5B applies to all current paths, thus being global); and

executing a procedure for identifying the nodes that are traversed by the light path existing between the source node and the destination node in the OCN (block 502 in Fig. 5B includes the procedure of identifying individual paths as in col. 7, l. 36-39, thus being local); wherein the path to be monitored includes a start node where monitoring is invoked (e.g., traffic management nodes (TMNs) provide monitoring step, all paths are monitored in block 200 in Fig. 2, one of these paths would include a TMN start node where the monitoring step is invoked).

Rajagopal does not expressly disclose:

said paths being *light* paths;

said Communication Network being an *Optical* Communication Network;

invoking said monitoring through a *Command Line Interface (CLI)*; and

the *names Trace, Walk, Global Discovery, and Local Discovery* for the procedures (emphasis Examiner's).

Regarding the limitations about light paths and an optical communication network, notice that Rajagopal broadly applies to the field of communication networks. Obvious variations of communication networks are those embodied in optical communication networks. At the time the invention was made, it would have been obvious to one of ordinary skill in the art to apply the method of Rajagopal to an optical communication network. One of ordinary skill in the art would have been motivated to do this for the common motivational benefits of higher bandwidth and higher speed, compared to electrical communication networks. Furthermore, optical communication networks imply light paths for the optical communication signals.

Regarding the CLI limitation, notice that Rajagopal's method is realized in computer hardware, firmware, software, or combinations thereof (col. 11, l. 63-67). A command line interface is an obvious limitation for Rajagopal's method since it is an extremely common way for a practitioner to interface with a computer program, which is generally realized in computer hardware, firmware, software, or combinations thereof.

Regarding the limitations about the names Trace, Walk, Global Discovery, and Local Discovery, these names are simply descriptive labels that do not add any inventive limitations to the method.

Regarding claim 2, Rajagopal discloses:

A method as claimed in claim 1, wherein the step of executing the procedure called Trace comprises the step of:

constructing lists of nodes that are on the light path to be monitored (e.g., list of nodes from TMN 6 to TMN 3 in col. 8, l. 28-29 and list of nodes from TMN 3 to TMN 8 in col. 8, l. 30).

Rajagopal does not expressly disclose:

displaying said lists of nodes.

However, displaying such information is an obvious technique so that a practitioner can follow the progression of the method.

Regarding claim 3, Rajagopal discloses:

A method as claimed in claim 2, wherein the step of constructing the lists of nodes, comprises the steps of:

constructing a list of nodes that are traversed in sequence by the light path from the start node to the source node as RESULT_LIST1 (e.g., col. 8, l. 28-29, TMN 3 as start node and TMN 6 as source node); and

constructing the list of nodes that are traversed in sequence by the light path from the start node to the destination node as RESULT_LIST2 (e.g., col. 8, l. 30, TMN 3 as start node and TMN 8 as destination node).

Regarding claim 6, Rajagopal does not expressly discloses:

A method as claimed in claim 3, wherein the step of displaying list of nodes comprises the step of displaying RESULT_LIST1 and RESULT_LIST2.

However, displaying such information is an obvious technique so that a practitioner can follow the progression of the method.

Regarding claim 12, Rajagopal discloses:

A method as claimed in claim 1, wherein the procedure called Global Discovery (block 502 in Fig. 5B applies to all current paths, thus being global) comprises the steps of:

flooding the OCN (block 502 in Fig. 5B is described in col. 7, l. 34-39, and this refers to block 200 in Fig. 2; block 200 may employ flooding of messages to all other nodes as described in col. 4, l. 36-43).

Rajagopal does not expressly disclose:

displaying a list of nodes traversed by the light path.

However, displaying such information is an obvious technique so that a practitioner can follow the progression of the method.

Regarding claim 14, Rajagopal discloses:

A method as claimed in claim 1, wherein the procedure called Local Discovery (block 502 in Fig. 5B includes the procedure of identifying individual paths as in col. 7, l. 36-39, thus being local) comprises the steps of:

constructing lists of optical nodes detected via local neighbour discovery (the procedure of identifying individual paths as in col. 7, l. 36-39 includes constructing lists of optical nodes).

Rajagopal does not expressly disclose:

displaying a list of nodes traversed by the light path.

However, displaying such information is an obvious technique so that a practitioner can follow the progression of the method.

Regarding claims 16-18, 21, 26, and 28, claims 16, 17, 18, 21, 26, and 28 are system claims that introduce limitations that correspond to the limitations introduced by method claims 1, 2, 3, 6, 12, and 14, respectively. Therefore, the recited steps in method claims 1-3, 6, 12, and 14 read on the corresponding means in system claims 16-18, 21, 26, and 28.

7. **Claims 4-5, 7-11, 13, 15, 19-20, 22-25, 27, and 29** are rejected under 35 U.S.C. 103(a) as being unpatentable over Rajagopal as applied to the claims above, and further in view of Sengupta et al.

("From network design to dynamic provisioning and restoration in optical cross-connect mesh networks: an architectural and algorithmic overview", hereinafter "Sengupta").

Regarding claims 4-5, Rajagopal does not expressly disclose:

(claim 4) A method as claimed in claim 3, wherein the step of constructing RESULT_LIST1 comprises the step of identifying all nodes pre-provisioned to be on the light path that have detected and processed a wavekey corresponding to the light path wherein the wavekey is a signature that uniquely identifies the light path.

(claim 5) A method as claimed in claim 3, wherein the step of constructing RESULT_LIST2 comprises the step of identifying all nodes pre-provisioned to be on the light path that have detected and processed the wavekey corresponding to the light path wherein the wavekey is a signature that uniquely identifies a light path.

However, the practice of pre-provisioning lightpaths and nodes on these lightpaths through a signature that uniquely identifies the light path is known in the art, as shown by Sengupta (Fig. 3, section "Lightpath Establishment" on p. 50-51, bridging paragraph, notice the label request in Fig. 3 and the "path identifier" on p. 51, col. 1, 1st full paragraph). At the time the invention was made, it would have been obvious to one of ordinary skill in the art to include such a practice in the method of Rajagopal. One of ordinary skill in the art would have been motivated to do this to prepare these nodes for the establishment of the light path through them (Sengupta, p. 49, col. 2, section "Lightpath establishment").

Regarding claim 7, Rajagopal discloses:

A method as claimed in claim 1, wherein the procedure called Walk comprises the steps of:

constructing lists of nodes to be present on the light path to be monitored (e.g., list of nodes from TMN 6 to TMN 3 in col. 8, l. 28-29 and list of nodes from TMN 3 to TMN 8 in col. 8, l. 30).

Rajagopal does not expressly disclose:

constructing lists of nodes *that are provisioned with expected wavekey* to be present on the light path to be monitored; and

displaying said lists of nodes.

Regarding the wavekey limitation, see the application of Sengupta to the corresponding wavekey limitation in the treatment of claims 4-5 above.

Regarding the displaying limitation, displaying such information is an obvious technique so that a practitioner can follow the progression of the method.

Regarding claim 8, Rajagopal in view of Sengupta discloses:

A method as claimed in claim 7, wherein the step of constructing lists of nodes that are provisioned with expected wavekey to be present on the lightpath to be monitored comprises the steps of:

constructing the list of nodes that are provisioned to be present with expected wavekey on the light path from the start node to the source node as RESULT_LIST1 (e.g., col. 8, l. 28-29, TMN 3 as start node and TMN 6 as source node); and

constructing the list of nodes that are provisioned to be present on the light path from the start node to the destination node as RESULT_LIST2 (e.g., col. 8, l. 30, TMN 3 as start node and TMN 8 as destination node).

Regarding claim 9, Rajagopal in view of Sengupta discloses:

A method as claimed in claim 8, wherein the step of constructing RESULT_LIST1 comprises the step of identifying nodes that are provisioned to process the expected wavekey corresponding to the light path, wherein the wavekey is a signature that uniquely identifies the light path (Sengupta, Fig. 3, section "Lightpath Establishment" on p. 50-51, bridging paragraph, notice the label request in Fig. 3 and the "path identifier" on p. 51, col. 1, 1st full paragraph).

Regarding claim 10, Rajagopal in view of Sengupta discloses:

A method as claimed in claim 8, wherein the step of constructing RESULT_LIST2 comprises the step of identifying nodes that are provisioned to process the expected wavekey corresponding to the light path, wherein the wavekey is a signature that uniquely identifies the light path (Sengupta, Fig. 3, section "Lightpath Establishment" on p. 50-51, bridging paragraph, notice the label request in Fig. 3 and the "path identifier" on p. 51, col. 1, 1st full paragraph).

Regarding claim 11, Rajagopal in view of Sengupta does not expressly disclose:

A method as claimed in claim 7, wherein the step of displaying the lists of nodes comprises the step of displaying RESULT_LIST1 and RESULT_LIST2.

However, displaying such information is an obvious technique so that a practitioner can follow the progression of the method.

Regarding claim 13, Rajagopal in view of Sengupta does not expressly disclose:

A method as claimed in claim 12, wherein the step of flooding the OCN comprises the steps of:

retrieving the list of all optical nodes in the OCN from the CN (Control Network) topology information; and

sending messages to all the optical nodes enquiring whether they have processed the wavekey corresponding to the light path; and

requesting all the nodes that have detected the wavekey to reply back to the start node with an affirmative acknowledgement.

Regarding the retrieving limitation, it is obvious for a Global Discovery procedure to retrieve a list of all optical nodes in an OCN. One of ordinary skill in the art would have been motivated to do this so that the Global Discovery procedure can know which network elements (e.g., nodes) exist in the network. It is also obvious to receive such a list from Control Network topology information since topology information conventionally includes a list of all nodes in a network.

Regarding the sending messages limitation and the requesting limitation, Sengupta teaches sending messages to some optical nodes enquiring whether they have processed a wavekey corresponding to a light path (Sengupta, Fig. 3, section "Lightpath Establishment" on p. 50-51, bridging paragraph, notice the label request in Fig. 3 and the "path identifier" on p. 51, col. 1, 1st full paragraph) and requesting some nodes that have detected the wavekey to reply back with an affirmative acknowledgement (Sengupta, label response in Fig. 3). As a Global Discovery procedure generally applies to all nodes in a network, it follows that it would be obvious to apply Sengupta's teachings to all the nodes in the network.

Regarding claim 15, Rajagopal in view of Sengupta does not expressly disclose:

A method as claimed in claim 14, wherein the step of constructing lists of optical nodes detected via local neighbour discovery comprises the steps of:

sending messages to all neighbouring nodes discovered via the CN (Control Network) topology information enquiring whether they have processed the wavekey corresponding to the light path; and

requesting all the nodes that have detected and processed the wavekey to request their neighbouring nodes (discovered via the CN topology information) to reply back to the start node if they have processed the wavekey.

Regarding the nodes discovered via CN topology information, it is obvious for a Local Discovery procedure to discover the nodes via CN topology information since topology information conventionally identifies nodes in a network, including neighboring nodes.

Regarding the sending messages limitation and the requesting limitation, Sengupta teaches sending messages to some optical nodes enquiring whether they have processed a wavekey corresponding to a light path (Sengupta, Fig. 3, section "Lightpath Establishment" on p. 50-51, bridging paragraph, notice the label request in Fig. 3 and the "path identifier" on p. 51, col. 1, 1st full paragraph) and requesting some nodes that have detected and processed the wavekey to reply back to a start node if they have processed the wavekey (Sengupta, label response from neighboring nodes in Fig. 3). As a Local Discovery procedure generally applies to neighboring nodes in a network, it follows that it would be obvious to apply Sengupta's teachings to neighboring nodes in the network.

Regarding claims 19-20, 22-25, 27, and 29, claims 19, 20, 22, 23, 24, 25, 27, and 29 are system claims that introduce limitations that correspond to the limitations introduced by method claims 4, 5, 7, 8, 9, 10, 13, and 15, respectively. Therefore, the recited steps in method claims 4-5, 7-10, 13, and 15 read on the corresponding means in system claims 19-20, 22-25, 27, and 29.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Perkins et al. is cited to show a method and an apparatus for an optical communication network that comprises a trace procedure (SONET includes trace capabilities), a procedure for identifying a potential light path (Figs. 6-7), and a procedure for network topology discovery (Fig. 3).

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David S. Kim whose telephone number is 571-272-3033. The examiner can normally be reached on Mon.-Fri. 9 AM to 5 PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth N. Vanderpuye can be reached on 571-272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DSK

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